

ABSTRACT OF THE DISCLOSURE

A semiconductor device is fabricated by injecting fluorine into a region of a semiconductor substrate other than a region of the semiconductor substrate where a thinnest gate insulating film is to be formed, among a plurality of regions where gate insulating films are to be formed. Then, the semiconductor substrate with fluorine injected therein is oxidized to form an oxide film in the plurality of regions. A surface of the oxide film is nitrided to turn a surface layer thereof into an oxynitride film or form a nitride film on the surface of the oxide film. The semiconductor device has a plurality of gate insulating films of different thicknesses which contain nitrogen in their surface layers.